Blue Bamboo
P25 Series End User Guide

Firmware version: V1.0.58 (or higher)

Document version: 1.6.3

Document date: 2011-11-06

Products: P25 / P25-M / P25i / P25i-M

P25 Printer Series

P25 Bluetooth Portable Thermal Receipt Printer

P25-M Bluetooth Portable Thermal Receipt Printer with MSR

P25i Bluetooth Portable Thermal Receipt Printer

P25i-M Bluetooth Portable Thermal Receipt Printer with MSR

Headquarters
Blue Bamboo Transaction Systems (Shanghai) Co., Ltd.
6 Floor, Huishan Technology Park, No. 3333 Changning Road,
Shanghai, P.R. China 200336
Tel: +86 21 5219 0333
Fax:+86 21 5219 0603
www.bluebamboo.com

Copyright © 2011 BLUE BAMBOO
All rights reserved.
No part of this publication may be copied, distributed, stored in a retrieval system, translated into any human or computer language, transmitted, in any form or by any means, without the prior written consent of BLUE BAMBOO.

Trademark

BlueBamboo logo is a registered trademark of BLUEBAMBOO LTD.

All other trademarks are the properties of their respective companies.

Certification

The product has been approved by FCC.

Li-ion Battery has been approved by UN.DOT and CE certification.

Power adapter has been approved by CCC, TUV GS, UL, CE and FCC certification.

FCC compliance statement:

"This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation."

SAR statement:

The P25 printer series conforms to Article C95.1-1999 of essential requirements and other relevant requirements of ANSI. The antennas used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

Information in this document is subject to change without notice.

Table of Content

Precaution 5
1. Introduction 6
2. Specification 7
3. Unpacking the Unit Carton 8
4. P25 Printer Series Operation 9
4.1. Hardware Features 9
4.2. Paper and Printing 10
4.2.1. Loading paper 10
4.2.2. Recommended Paper 11
4.2.3. Using Thermal Paper 11
4.2.4. Storing Thermal Paper 11
4.2.5. Printer 12
4.2.6. Printing Position 12
4.3. Battery 13
4.3.1. Battery Installations and Removal 13
4.3.2. Battery and Charging 14
5. Using the Printer 15
5.1. Control Panel 15
5.2. Printer Test Receipt 16
6. Interface 18
6.1. Data Port 18
6.2. Bluetooth 18
6.2.1. Bluetooth Discovery Mode 19
6.2.2. Connecting to Non-Apple Devices using Bluetooth 19
6.2.3. Connecting to Apple Devices using Bluetooth 19
6.3 Using MSR Function 21
7. Troubleshooting 22
8. Known Issues 23
9 Revision History 24

Precaution

Using the Printer

- Do not drop the printer on hard surfaces.
- Do not permanently install the printer in direct sunlight.
- Do not operate the printer near devices that generate strong electromagnetic fields such as a copy machine.
- Do not remove or install the communication cable during printing or transmission.
- Turn off the printer before removing or installing the Power and/or communication cable to prevent electrostatic discharge (ESD) damage.

Environment

- Operating temperature: -5 °C to 50 °C
- Relative humidity: 20% to 85% (no-condensing)
- Storage temperature: -20 °C to 60 °C
- Storage humidity: 5% to 90%RH

1. Introduction

The P25 printer series are designed to be portable, compact and affordable. They are intended to be used with mobile phones, laptops, netbooks, tablets, POS terminals, PDA's and other similar portable devices. This manual contains the basic instructions for installing and using these printers. Take some time to familiarize yourself with this manual, the printer, and its accessories.

Type	Bluetooth	Apple MFi*	USB Port	Serial Port	3-Track MSR
P25 (Serial)	X			X	
P25 (USB)	X		X		
P25i (USB)	X	X	X		
P25-M (Serial)	X			X	X
P25-M (USB)	X		X		X
P25i-M (USB)	X	X	X		X

*Apple MFi versions are made for iPhone®, iPad™, iTouch touch®, running iOS 4.0 or above.

2. Specification

Item	Specification
Print width	48mm
Print resolution	203dpi (8 dpmm) horizontal & vertical
Print speed	50mm/sec at 1/6 print ratio in 7.4V, 25℃
Feed speed	50mm/sec
Dimension(W × D × H) (without rubber case)	P25 / P25i: 72mm x 96mm x 45mm (2.8” x 3.8” x 1.8”) P25-M / P25i-M: 72mm x 110mm x 45mm (2.8” x 4.3” x 1.8”)
Weight (g) (without paper)	P25 / P25i: 210g P25-M / P25i-M: 235g
Paper specification	Paper width: 56~58mm Paper thickness: 60 to 100 μm Maximum paper roll outside diameter: 40mm Minimum paper roll inside diameter: 11mm
Keypad	Power button, Feed button, Mode button
Indicator	Tricolor LED
Interface	USB: 2.0, full speed Serial: RS-232 Bluetooth: V2.0+EDR, Class 2, SPP
Magnetic Strip Reader	Supports ISO 7811 Track 1,2,3 cards (P25-M / P25i-M only)
Battery	Rated voltage: 7.4VDC Output current: 1400mAH Single charge: 3 hours, 500 charge cycles Support printing 20m (at 12.5% printing ratio), Self-discharge ratio: 10% per week
Power adapter	Input voltage: 100–240V AC, 50/60 Hz Output voltage: 9V DC, 1A
Graphic support	Print image in bitmap format
Multi font support	Support ISO 8859-15, Chinese Simplified and Traditional fonts.
Auto Power down	Support auto shut down feature (Programmable).
Application update	Update via USB, Bluetooth or Serial port with PC tool (P25 Device Manager)
Font update	Font download and update via USB, Bluetooth or Serial port with P25 Device Manager
Certifications	FCC: Part 15 Class B/C UL: UL60950 (Power adaptor only) TUV/GS: EN 60950-1 2001 (Power adaptor only)
Environment	Storage Temperature: -20 °C to 60 °C Operating Temperature: -5 °C to 50 °C Storage Humidity: 5% to 90%RH, non-condensing Operating Humidity: 20% to 85% RH, non-condensing

3. Unpacking the Unit Carton

When opening the original shipping carton, carefully inspect the contents and check for the following items. If any items are damaged or missing, please contact your dealer.

Printer (P25-M shown)

Paper

Shaft

Data Cable

Rugged Case

Battery

Power Adapter

Buckle

Quick Installation Guide

Figure 1 - P25 printer series packing list

4. P25 Printer Series Operation

4.1. Hardware Features

Note: For all printers produced before 04/22/2009, the location of the PIN code label is underneath the lid:

Figure 2 - Hardware feature

4.2. Paper and Printing

The printer can hold a roll of single-ply thermal-sensitive paper, 58 mm wide, and 40 mm or less in diameter. A pink *out-of-paper* indicator line appears on the edge of the paper approximately 18 inches before the end of the roll. When this line appears, there is enough paper remaining for at least one more transaction.

Warning:

- Only use paper rolls that meet the specifications.
- Do not use paper rolls that are glued to the cardboard spindle as the printer will not be able to detect the paper end.

4.2.1. Loading paper

a. Open the lid.
b. Insert the shaft into the paper roll.
c. Install paper roll with edge of paper pointing up.
d. Pull out a small amount of paper past the tear bar and close the lid.
e. Tear paper across the tear bar.

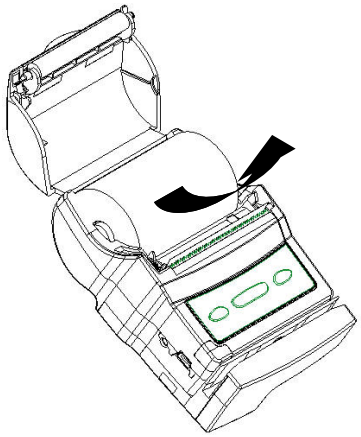


Figure 3 - Loading paper

4.2.2. Recommended Paper

Item	Specification
Type	Thermal paper
Paper width	56~58mm
Paper thickness	60 to 100um
Paper roll diameter	50mm at max
Recording side	Outside of roll

4.2.3. Using Thermal Paper

a. Chemicals and oil in the thermal paper may cause discoloration and faded printing. Therefore, pay attention to the following;

b. When gluing thermal paper, use water paste, starch paste, polyvinyl paste, or CMC paste.

c. Volatile organic solvents such as alcohol, ester, and ketone can cause discoloration.

d. Some adhesive tapes may cause discoloration or faded printing.

e. If thermal paper touches diazo copy paper immediately after copying, the printed surface may be discolored.

f. If the surface of thermal paper is scratched with a hard metal object such as a nail, the paper may become discolored.

g. Thermal paper containing Na, K, and Cl ions can harm the print head thermal elements. Therefore, be sure to use thermal paper that meets the right specifications.

4.2.4. Storing Thermal Paper

a. Since color development begins at 70C (158F), thermal paper should be protected from high temperature, humidity, and light, both before and after printing.

b. Store paper away from high temperatures and humidity. Do not store thermal paper near a heater or in enclosed places exposed to direct sunlight.

c. Avoid extended exposure to direct light as it may cause discoloration or fading.

d. If thermal paper touches anything which includes phthalic acid ester plasticizer for a long time, it can reduce the image formation ability of the paper and can cause the printed image to fade. Therefore, when storing thermal paper in a card case or sample notebook, be sure to use only products made from polyethylene, polypropylene, or polyester.

e. Thermal paper must not be stored with the printed surfaces touching against each other because the printed material may be transferred between the surfaces.

Because this tear bar uses steel, the tear bar may be subject to rust. However, this does not affect printer performance.

4.2.5. Printer

a. The thermal elements of the print head and driver ICs are easy to break so do not touch them with your fingers or metal objects.

b. Since the print head becomes very hot during and just after printing, do not touch the print head.

c. Do not touch the surface of the print head because dust and dirt can stick to its surface and damage it.

4.2.6. Printing Position

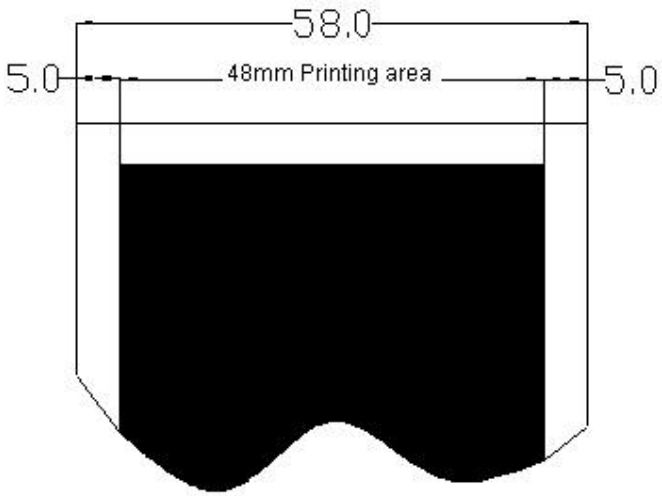


Figure 4 - Printing position

4.3. Battery

Warning:

- Please do not dispose of the battery in fire or water.
- Extreme temperatures will degrade the performance of your battery. Do not store the battery in an area with a temperature below -20°C or above 60°C.

4.3.1. Battery Installations and Removal

Installing battery for the first time:

a. Remove rugged case from printer (if installed).
b. Flip printer over and locate battery.
c. Pull battery clip back towards battery and tilt battery up and out of printer.
d. Remove battery contact guard from battery.
e. Reinstall battery and press until battery clip clicks into place.

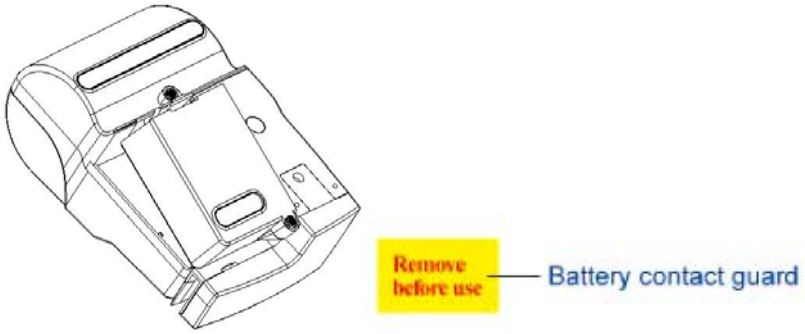


Figure 5 - Battery installation and removal

Removing battery:

a. Remove rugged case from printer (if installed).
b. Flip printer over and locate battery.
c. Pull battery clip back towards battery and tilt battery up and out of printer.

Notes:

- When installing or removing the battery, the printer should be turned off.
- The battery should be removed if the printer is not going to be used for an extended period of time.

4.3.2. Battery and Charging

Power to the printer is supplied by a polymer lithium ion battery which uses a 100 - 240VAC Power adapter for charging. A typical battery can last for ~500 charging cycles and will run a printer for up to 100 hours in standby Mode and print more than 200 pieces of 100 mm receipts for each charge.

Battery specifications:

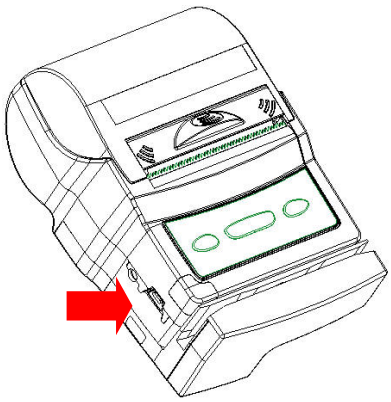
- Rate Voltage: 7.4V
- Output current: 1400mAH

AC Power adapter specifications:

- Power plug: The adapter has a Power cord to the outlet and has a country specific for the plug and a DC Power cord to the printer
- Input voltage: AC 100–240V, 50/60HZ
- Output: 9.0V DC 1.0A

The Power adapter is connected to the left side of the printer.

a. Insert the DC plug of Power adapter into the Power jack of printer;
b. Insert the AC plug of Power adapter into AC Power supply; the red LED will flash continuously when the battery is being recharged.
c. When charging is complete, the red LED will turn off.



Warning:

If the red LED turns on for a short time and then turns off quickly when the battery starts charging, there are two possible reasons: Either the battery is completely charged, and there is no need to charge again, or this battery doesn't work; please change it.

5. Using the Printer

5.1. Control Panel

Buttons

- **Power button ---**The **Power** button switches the power on/off. To power off, press the **Power** button for more than 1s.
- **Feed button**--- The **Feed** button advances the paper roll continuously until the button is released. Also, the **Feed** button enters into boot loader mode when holding the **Feed** button and powering on the printer.
- **Mode button**
  a. The **Mode** button prints a self-test receipt when pressed together with **Feed** button.
  b. If the Bluetooth discovery of P25 printer series has been set as "**Mode key**" mode then other devices can not discover the printer via Bluetooth when the printer powers on. Please press the **Mode** button one time manually to start the Bluetooth discovery function. After that, other devices can discover the printer via Bluetooth within 90 seconds. Once the time exceeds the default time limit, the printer will not be discovered automatically.
  c. For the P25i / P25i-M printers, double press the **Mode** button can disconnect or reconnect Bluetooth between the printer and Apple products.

LED

There is a tricolor LED indicator to provide Feedback on the P25 printer series status:

(Blue)	Constantly lit	Bluetooth module is available
	Irregularly flashing	data transaction via Bluetooth
	Periodically flashing	Connecting/disconnecting Apple products
(Green)	Constantly lit	Power on, normal status
	Irregularly flashing	Data transaction via USB or serial port
	Periodically flashing (5-6 seconds)	Starting the printer
(Red)	Constantly lit	Charging
	Flashing intermittently with Blue LED	An error has occurred
	Off	Charging finished

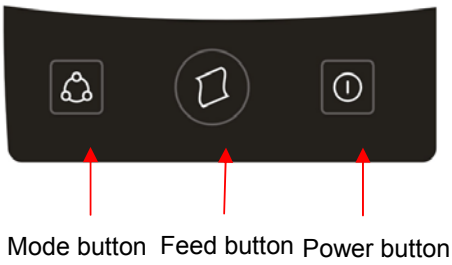
Flashing type Red , Green, Blue	Error description	Check Steps	Remedy
(B R)	There is no more paper	1	Add paper Close the paper cover
	The paper cover is open	2	
(B R R)	An transmission error occurred	3	Check the transmission status
(B R R R)	An overheat error occurred	4	Wait until the print head cools down
(B R R R R)	Battery voltage is low	5	Charge the battery

Note:

– If an error has occurred while charging, the LED will show the above error messages.

5.2. Printer Test Receipt

Printer test receipt displays all the configuration status of the printer. Hold the **Mode** button and press the **Feed** button at the same time to start the test.



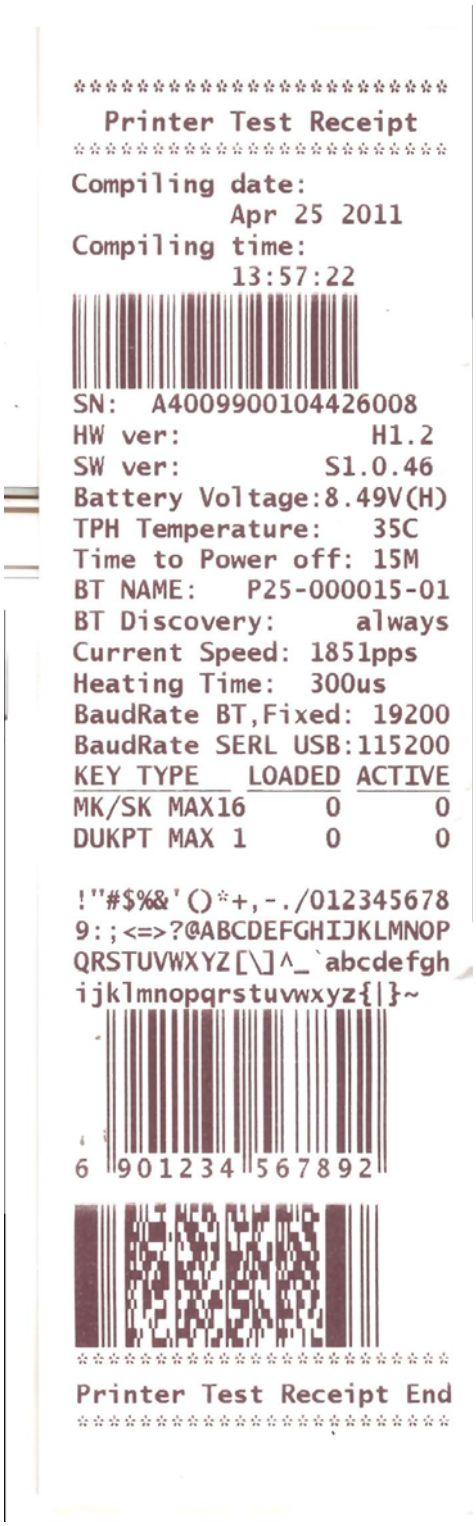


Figure 6 - Printer test receipt

Printer test receipt displays the following:

- **Compiling date**: The compiling date of the software.
- **Compiling time**: The compiling time of the software.
- **SN: XXXXXXX**: Serial number of the printer.
- **HW ver**: Hardware version of the printer.
- **SW ver**: Software version of the printer.
- **Battery voltage**: Battery level of the printer.

H—High M—Medium L—Low S—Shortage

But for “S”, it will never display on the receipt since when the printer battery reaches “S” level, the printer will stop working immediately.

- **TPH temperature**: Temperature of the printer head.
- **Time to power off**:
- **BT name**: Bluetooth name of the printer.
- **BT discovery**: There are three Bluetooth discovery modes of the printer. More detail, please refer to Section 6.2.1.
- **Current speed**: Current printing speed of the printer.
- **Heating time**: Time needs to heat the printer before printing.
- **BaudRate BT, Fixed: 19200:** Display baudrate of Bluetooth. The baudrate is a fixed data 19200.
- **BaudRate serial USB**: Display baudrate of serial USB. The baudrate can be changed by customers via P25 Device Manager.
- **Key type/Loaded/Active**: Master key/Session key/DUKPT key information will be displayed here. Customers can know the status of the key from the numbers. If there is no Master key/Session key/DUKPT key in the printer, it displays “0” under “**LOADED**” column. If there no key active in the printer, it displays “0” under “**ACTIVE**” column.

6. Interface

6.1. Data Port

The Data port allows the P25 printer series to connect via a USB cable or Serial port connection to host device.

- Mini USB-A (White) is for RS232 serial port
- Mini USB-B (Black) is for USB

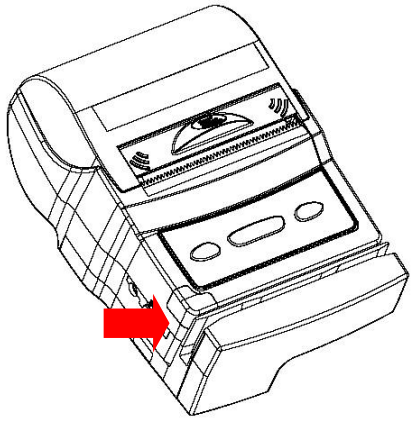


Figure 7 - Data port

6.2. Bluetooth

The P25 printer series can communicate with other Bluetooth SPP compatible devices, such as peripheral equipment PDAs, mobile phones, and computers. Confirm that your host device supports the SPP (Serial Port Profile) before using the P25 printer series. Bluetooth communication distance is up to 10m. You can find the P25 printer series device in the host's Bluetooth manager.

Note:

– For how to set Bluetooth connection between P25 printer series and PC, please refer to Appendix B in P25 Device Manager User Guide for more information.

6.2.1. Bluetooth Discovery Mode

There are three discovery modes to Bluetooth connection on P25 printer series. Before you start to do the Bluetooth connection, please make sure that you already know which mode you have on the printers. (Refer Section 5.2 “Printer Test Receipt” to know the Bluetooth discovery mode of your printer.)

“**Always**” means the printer can be discovered by other devices via Bluetooth at any time when it powers on.

“**1st connect**” means the printer can be discovered by other devices via Bluetooth when it is Powered on. But when they connect with each other successfully via Bluetooth for one time and stop the Bluetooth connection between these two devices after finishing the transaction or printing then the printer can not be discovered any more unless you restart the printer.

“**Mode key**” means the printer can not be discovered by other devices via Bluetooth at any time until you press the **MODE** button one time to enable the printer to be discovered by other devices via Bluetooth with 90 seconds. Once the time exceeds the default time limit, the printer will not be discovered.

6.2.2. Connecting to Non-Apple Devices using Bluetooth

When using P25 printers to connect to non-Apple devices via Bluetooth, mainly steps are:

- Open the Bluetooth function on your device then search the printer.
- Enter the PIN code when pairing. (The printer’s Bluetooth PIN can be found under the printer paper roll.)
- Establish the Bluetooth connection between your device and the printer.

Note:

If you still have problem, please refer to Bluetooth section in your device’s user guide or contact your distributor for support.

6.2.3. Connecting to Apple Devices using Bluetooth

Please use the following steps to connect/disconnect your P25i/P25i-M printer to your Apple device (iPhone/iPad/iPod Touch running iOS 3.1 or higher).

First Connection

- Begin by making sure your printer and Apple device are close together (no longer than 5 meters)
- Power on the printer and make sure it is in discoverable mode. The printer’s LED will flash green for ~5 seconds. (See Section 6.2.1 for information regarding discovery mode)

- On your Apple device's home screen tap **Settings** → **General** → **Bluetooth**.
- If your Apples device Bluetooth is not tuned on at this time, then move the Bluetooth slider to "On".
- Your Apple device will then search and list all discoverable Bluetooth devices within range.
- Find your P25i/P25i-M printer on the displayed list and select it. The printer's LED will flash blue for several seconds. (The printer's Bluetooth name can be found under the printer paper roll.)
- Next enter the printers PIN code. The printer's LED will turn solid blue when successfully connected. (The printer's Bluetooth PIN can be found under the printer paper roll.)
- The printer should now be connected and ready to use.

Subsequent Connections

- Your P25i/P25i-M printer is designed to automatically connect to the last Apple device it was connected with. The only exception to this is if the printer's last connection was to a non-Apple device, then the printer's memory will be erased. If your last connection was to a non-Apple device or you want to connect to a different Apple device then you must follow the step as shown in the **First Connection** above.
- To re-establish a connection, first make sure your Apple's device Bluetooth is turned on.
- Power on the printer.
- The printer should now automatically connect to your Apple device. The printer's LED will flash blue when connecting and then turn solid blue when successfully connected.
- If printer was already powered on then simply press the **MODE** key twice to re-establish a connection.

Disconnect

There are four ways to disconnect your printer from your Apple device.

- Option 1: Power off printer.
- Option 2: Press **MODE** key on printer twice. (Press twice again to re-establish)
- Option 3: Turn-off Bluetooth on your Apple device.
- Option 4: In the Bluetooth settings of your Apple device, select your printer and then select "Forget this Device". (Warning – This will remove the pairing agreement between your Apple device and printer and you will have to follow the step as shown in the **First Connection** above to re-establish pairing.)

6.3 Using MSR Function

The Magnetic Stripe Reader (MSR) will read three tracks in both directions (bi-directional). Please see Figure 11. After the P25-M / P25i-M read the card information, all card information will be sent to host device by printer.

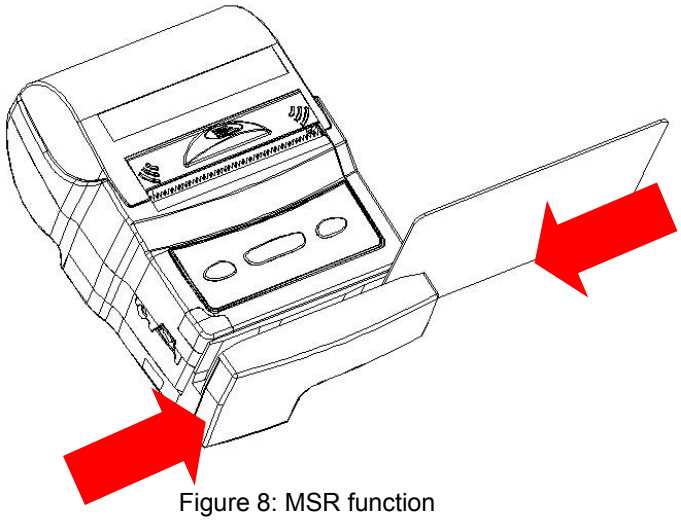


Figure 8: MSR function

7. Troubleshooting

1. **The printer does not print**

   a. Make sure that the paper cover is properly closed.

   b. Check if the paper is properly inserted.

   c. Check the voltage of battery, and confirm whether it stands in proper range or not, if the battery voltage is low, please recharge it at once.

2. **Bluetooth does not work**

   a. Confirm Bluetooth host device supports SPP master profile.

   b. Check that the PIN code has been correctly entered.

3. **USB or serial port does not work**

   a. Check the USB or serial port connection.

   b. Check the COM port number on PC.

Note:

If your problem still can not be resolved please contact your local dealer for assistance.

8. Known Issues

1. The first line of the characters on the printed receipt is too light. (before version 2007-10-10)

The motor of the printer is quite slow when printing the first line of a receipt, so that the time between two heat strobes are very long and the characters printed seems to be light. However, if the first line is left blank (only CR) then the receipt will be alright. This problem has been resolved in later release versions. (It only occurs in the versions before 2007-10-10)

2. Printing flushes the bootloader if the P25 printer series is in download Mode (before version 2008-06-02)

Press Feed + Power key, the P25 printer series enters into download Mode, but if sending printing data instead of download data, the printing flushed P25's bootloader, (This problem only occurs before bootloader version 2008-06-02. after that version, this problem has solved.)

3. After downloading a new font, printing data would cause the paper to burn.

After downloading a new font file, press **Mode** + **Feed** to do a self test caused the paper to burn severely. This was caused by using an old version of the Device Manager (before Device Manager version 2007-12-26) and font designed for the new version of the Device Manager.(2007-12-03 <= firmware version < 2008-06-20), After version 2008-06-20, font file name extension was changed from " . "font to" .ap2", and the old version of the Device Manager did not support downloading of .ap2 files, so the operation failed.

9 Revision History

Revision 1.0 (June 29, 2007)	Initial Release.
Revision 1.1 (February 03, 2008)	Add Serial Port Support
Revision 1.2 (June 16, 2008)	Add section Known Issues
Revision 1.3 (April 23, 2009)	Add the note for the location change of PIN code label and SN label
Revision 1.4 (Dec 08, 2009)	Add the version number and section Revision History
Revision 1.5 (May 12, 2011)	Add the pic of P25Mi printer and serial cable. Update the print test receipt. Add section 6.2.1 to describe Bluetooth connection between P25i / P25i-M printer and Apple products.
Revision 1.5.1 (July 13, 2011)	Correction.
Revision 1.6 (August 8, 2011)	Change format and add Bluetooth information in Section 6.
Revision 1.6.1 (September 23, 2011)	Correction
Revision 1.6.2 (September 23, 2011)	Format update.
Revision 1.6.3 (November 6, 2011)	Changed iOS 3.1 to 4.0